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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/701,864 | 11/05/2003 | Yong Wang | 200312367-1 | 7773 |

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EXAMINER

NGHIEM, MICHAEL P

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

2863

DATE MAILED: 03/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

| | | | |
|------------------------------|-------------------------------|-----------------------------|--|
| Office Action Summary | Application No. 10/701,864 | Applicant(s) WANG ET AL. | |
| | Examiner Michael P. Nghiem | Art Unit 2863 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-18, 20-24, 28 and 29 is/are rejected.
- 7) ☒ Claim(s) 19 and 25-27 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>11-5-03</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:

- US Application number and filing data are missing from paragraph under "Related Application" (page 1 of specification).

Appropriate correction is required.

2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract contains less than 50 words.

Claim Objections

3. Claims 5 and 27 are objected to because of the following informalities:

- claim 5, "at at" (lines 2-3) should be – at --.
- claim 27, "parmeter" (line 4) should be – parameter --.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-5, 7-17, 20-22, 28, and 29 are rejected under 35 U.S.C. 102(e) as being anticipated by Metzger et al. (US 6,594,604).

Regarding claims 1, 10, 14, 20, 28, and 29, Metzger et al. discloses a system and method for determining S-parameters of a network (Abstract, lines 1-3), comprising:

- an S-parameter calculator (Abstract, lines 4-8) that computes the S-parameters (Abstract, line 8) of the network based on waveform parameters (Abstract, lines 5-7) determined based on single port measurements implemented at each of plural ports of the network (Abstract, lines 5-6).

Regarding claim 2, Metzger et al. discloses that the waveform parameters comprise information related to at least one of a transmission (a1) and a reflection (b1) of a signal provided at the single port (P1, Fig. 3).

Regarding claims 3, 10, 11, 15, and 16, Metzger et al. further discloses that the S-parameter calculator determines reflection coefficients based on the waveform parameters (column 2, lines 22-26), the S-parameter calculator determining the S-parameters based on the reflection coefficients (column 2, lines 27-35).

Regarding claim 4, Metzger et al. discloses that the reflection coefficients comprise values functionally related to a transmission and a reflection of a signal provided at the single port (the reflection coefficient is a function of impedance, column 2, lines 22-24, which affects transmission).

Regarding claims 5 and 12, Metzger et al. discloses that the single port measurement comprising measurements implemented at least three of:

- the first port while the second port is open (Fig. 10);

- the first port while the second port is shorted (Fig. 9);
- the second port while the first port is open (Fig. 13);
- the second port while the first port is shorted (Fig. 12).

Regarding claims 7 and 13, Metzger et al. discloses that the S-parameter calculator computes the S-parameters of the network based on a subset of less than all possible reflection coefficients for the network (measurement at one port P1).

Regarding claim 8, Metzger et al. discloses a network analyzer (38) for performing the single port measurements (Figs. 16's).

Regarding claim 9, Metzger et al. discloses that the network is a passive multi-port network (Figs. 16's).

Regarding claim 21, Metzger et al. discloses that the determination of S-parameters further comprises determining reflection coefficients based on the waveform parameters and determining the S-parameters based on the reflection coefficients (column 2, lines 15-35).

Regarding claim 22, Metzger et al. discloses implementing single port measurements at each of the plural ports to provide the signal port measurements (Figs. 16's).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6, 18, 23, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Metzger et al. in view of Grace et al. (US 5,548,538).

Metzger et al. discloses all the claimed limitations as discussed above except that the reflection coefficients comprising at least three of:

- a first reflection coefficient of a first port while each of the other plural ports is open;
- a second reflection coefficient of the first port while each of the other plural ports is shorted;
- a third reflection coefficient of a second port while each of the other plural ports is open;
- a fourth reflection coefficient of the second port while each of the other plural ports is shorted.

Nevertheless, Grace et al. discloses measuring S-parameters with the reflection coefficients of short, open, and load (column 1, lines 33-39) for the purpose of calibrating the network by determining error terms composed of particular S-parameters.

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to provide Metzger et al. with reflection coefficient under different loading as disclosed by Grace et al. for the purpose of determining error terms composed of particular S-parameters.

Allowable Subject Matter

6. Claims 19 and 25-27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Reasons For Allowance

7. The combination as claimed wherein the computing means comprises means for averaging determined S-parameters for at least some of the plural sets of S-parameters (claims 19, 26) or selecting equations for determining reflection coefficients, implementing the selected equations to determine a subset of reflection coefficients for the network based on the waveform parameters and determining the S-parameters based on the reflection coefficients (claim 25) or determining S-parameters comprises

using different S-parameter equations to determine a plurality of values for the same S-parameter and comparing the values to facilitate verifying accuracy of the S-parameters (claim 27) is not disclosed, suggested, or made obvious by the prior art of record.

Contact Information

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael P Nghiem whose telephone number is (571) 272-2277. The examiner can normally be reached on M-H.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (571) 272-2269. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



**MICHAEL NGHIEM
PRIMARY EXAMINER**

Michael Nghiem

March 12, 2005